

APPENDIX A

Please amend the claims 1-16 and please add new claims 17-52, as follows. The entire set of the pending claims, including the amended claims and the newly added claims, is provided in the APPENDIX B attached hereafter.

1. (Amended) A [Reflective] reflective transmission type thin film transistor liquid crystal display (TFT LCD) comprising:

a [glass] substrate;

[at least one] a thin film transistor formed on [the] said substrate [for controlling a pixel] and including a source electrode;

a passivation layer formed over said substrate and having [at least one] a first contact hole [in a] exposing the source [region] electrode [of the thin film transistor];

a transmissive pixel electrode [which is] formed on the passivation layer and [is] connected [with] to a source electrode of the source region through a contact hole; [and]

[A] a reflective pixel electrode [which is] formed on the passivation layer and [is] connected [with] to the source electrode of the source region through a contact hole; and

a buffer layer formed between the transmissive pixel electrode and the reflective pixel electrode

wherein a pixel area of the TFT LCD [is composed of] has a transparent area [in which only the transmissive pixel electrode of whole pixel electrode exist] excluding the reflective pixel electrode and a reflective area including [in which] the reflective pixel electrode [exist].

2. (Amended) The reflective transmission type thin film transistor liquid crystal display of claim 1, [further comprising: a separating insulator between the transmissive pixel electrode and the reflective pixel electrode] wherein each of said transmissive pixel electrode and the reflective pixel electrode is in direct contact with the source electrode.

3. (Amended) The reflective transmission type thin film transistor liquid crystal display of claim [2] 1, wherein [the number of contact hole is one,] the transmissive pixel electrode and the [separating insulator] buffer layer have a hole exposing [revealing some part] a portion of the source [region] electrode, and

the reflective pixel electrode [which] is formed over the transmissive pixel electrode and the buffer layer, [is] and connected [with] to the exposed portion of the source electrode [of the part of the source region] via the hole.

4. (Amended) The reflective transmission type thin film transistor liquid crystal display of claim [2] 1, [wherein the number of contact hole is two, one for the transmissive pixel electrode and the other for the transmissive pixel electrode, and in the source region of the other contact hole, the transmissive pixel electrode and the separating insulator have a hole revealing for a connection between the reflective pixel electrode and the source electrode] further comprising a second contact hole formed through the buffer layer, the transmissive pixel electrode and said passivation layer to expose the source electrode,

wherein the transmissive pixel electrode is connected to the source electrode via the first contact hole and the reflective pixel electrode is connected to the source electrode via the second contact hole.

5. (Amended) The reflective transmission type thin film transistor liquid crystal display of claim 1, wherein [the number of contact hole is one,] the transmissive pixel electrode and the [separating insulator] buffer layer have a hole [revealing some part] exposing a portion of the source [region] electrode, and

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the reflective pixel electrode [which] is formed over the transmissive pixel electrode [is] and connected [with] to the exposed portion of the source electrode [of the part of the source region] via the hole.

6. (Amended) The reflective transmission type thin film transistor liquid crystal display of claim 1, wherein the reflective pixel electrode has a hole [revealing some part of] exposing a portion of the source region, and

the transmissive pixel electrode [which] is formed over the reflective pixel electrode [is] connected [with] to the exposed portion of the source electrode [of the part of the source region] via the hole.

7. (Amended) The reflective transmission type thin film transistor liquid crystal display of claim 6, further comprising[:] a separating insulator formed [having a connection hole connected with the hole] between the transmissive pixel electrode and the reflective pixel electrode.

8. (Amended) The reflective transmission type thin film transistor liquid crystal display of claim 1, wherein the reflective pixel electrode [is made with metals] comprising a

metal including aluminum, and the transmissive pixel electrode [is made with] comprising indium metal oxide lineage.

9. (Amended) The reflective transmission type thin film transistor liquid crystal display of claim 1, wherein the transparent area [takes form and shape of window of the reflective area] is in the shape of a window surrounded by the reflective area.

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10. (Amended) The reflective transmission type thin film transistor liquid crystal display of claim 9, wherein [a separation insulator existing between the reflective pixel electrode and the transmissive pixel electrode] the buffer layer is not formed [does not exist] in the transparent area.

11. (Amended) The reflective transmission type thin film transistor liquid crystal display of claim 1, wherein the passivation layer [is made with] comprises photosensitive transparent insulator, and [the] a surface of the passivation layer [is treated to take] has embossment [which forms micro lens for focusing light].

12. (Amended) A [Reflective] reflective transmission type thin film transistor liquid crystal display (TFT LCD) comprising:

a [glass] substrate;
[at least one] a thin film transistor formed on the substrate [for controlling a pixel];
a first [type] pixel electrode [which is deposited and patterned concurrently with gate of the thin film transistor,] comprising:

a [upper] non-oxidizing metal layer of which a portion removed in a transparent window region, and

a [lower] transparent conductor layer underlying the non-oxidizing metal layer;
a passivation layer [which is] formed over the thin film transistor and the first [type] pixel electrode, and [which has] having a contact hole [at a source contact region] exposing a source electrode of said thin film transistor and a hole [at] exposing the transparent window [and neighboring region]; and

a second [type] pixel electrode [which is] formed over [the] said passivation layer, [is] patterned to [cover whole pixel area except] expose the transparent window region, and [is] connected [with a] to the source electrode [of the thin film transistor] through the contact hole and connected [with] to the non-oxidizing metal layer through the hole [of the first type pixel electrode at the neighboring region].

13. (Amended) The reflective transmission type thin film transistor liquid crystal display of claim 12, wherein the passivation layer [is made with] comprises photosensitive transparent insulator.

14. (Amended) The reflective transmission type thin film transistor liquid crystal display of claim 13, wherein [at least at some part the] a portion of a surface of [the] said passivation layer [is treated to take] has embossment [which forms micro lens for focusing light].

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15. (Amended) The reflective transmission type thin film transistor liquid crystal display of claim 12, wherein [the] a thickness of the passivation layer corresponds to [the] a quarter of a wavelength of light in liquid crystal.

16. (Amended) The reflective transmission type thin film transistor liquid crystal display of claim 12, wherein the non-oxidizing metal is Cr or MoW [one selected form the group consisting of chromium and tungsten-molybdenum].

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17. (New) A method for manufacturing a liquid crystal display, comprising the steps of:

forming a gate wire formed on a substrate, said gate wire comprising a gate pad, a gate line and a gate electrode;

forming a gate insulating layer on the gate wire;

forming a data wire formed on the gate insulating layer, said data wire comprising a data pad, a data line, a source electrode and a drain electrode;

forming a transparent pixel electrode simultaneously with a subsidiary gate pad or a subsidiary data pad; and

forming a reflective pixel electrode,

wherein the transparent pixel electrode and the reflective pixel electrode are electrically connected to said source electrode.

18. (New) The method of claim 17, further comprising the steps of:

forming a passivation layer to cover the gate insulating layer and the data wire; and

patterning the passivation layer to expose the source electrode and the gate pad or the data pad.

19. (New) The method of claim 18, wherein the transparent pixel electrode and the reflective pixel electrode are electrically connected to said source electrode via a contact hole formed in the passivation layer.

20. (New) The method of claim 17, wherein the transparent pixel electrode is indium tin oxide (ITO) or indium zinc oxide (IZO).

21. (New) A liquid crystal display, comprising:
a substrate;
a gate wire formed on said substrate and comprising a gate pad, a gate line and a gate electrode;
a gate subsidiary pad formed on the gate pad;
a data wire formed on said substrate, intersecting said gate wire and comprising a data pad, a data line and a source electrode and a drain electrode;
a data subsidiary pad formed on the data pad;
a passivation layer formed over said substrate;
a transparent pixel electrode formed on said passivation layer and electrically connected to the source electrode; and
a reflective pixel electrode formed on said passivation layer and electrically connected to the source electrode,

wherein said transparent pixel electrode is formed with the same material with said gate subsidiary pad or said data subsidiary pad.

22. (New) The liquid crystal device of claim 21, wherein the transparent pixel electrode is indium tin oxide (ITO) or indium zinc oxide (IZO).

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23. (New) A liquid crystal display, comprising:
a gate electrode formed on a substrate;
a gate insulation film covering said gate electrode;
a source electrode and a drain electrode formed on said gate insulating film;
a passivation layer covering said source electrode and said drain electrode;
a transmissive pixel electrode electrically connected to said source electrode;
a reflective pixel electrode electrically connected to said source electrode; and
a buffer layer formed between said transmissive pixel electrode and said reflective pixel electrode,

wherein said buffer layer is refractory metal or silicon nitride.

24. (New) The liquid crystal display of claim 23, wherein said transmissive pixel electrode and said reflective pixel electrode are formed on the passivation layer and electrically connected to said source electrode via a contact hole formed in the passivation layer.

25. (New) The liquid crystal display of claim 24, wherein said buffer layer is silicon nitride.

26. (New) The liquid crystal display of claim 23, wherein said passivation layer covers said buffer layer and said transmissive pixel electrode, and said reflective pixel electrode is formed on the passivation layer and electrically connected to said source electrode via a contact hole formed in the passivation layer.

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27. (New) The liquid crystal display of claim 26, further comprising a window formed through the passivation layer and said buffer layer to expose said transmissive pixel electrode.

28. (New) The liquid crystal display of claim 26, wherein said buffer layer is Cr or

MoW.

29. (New) A liquid crystal display, comprising:
a gate electrode and a capacitor line formed on a substrate;
a gate insulating layer formed on said gate electrode and said capacitor line;
a source electrode, a data electrode and a capacitor electrode formed on the gate insulating layer, wherein said capacitor electrode is electrically connected to said capacitor line via a contact hole formed in said gate insulating layer;
a passivation layer covering said source electrode, said data electrode and said capacitor electrode;
a transparent pixel electrode formed on said passivation layer and electrically connected to said source electrode; and

a reflective pixel electrode formed on said passivation layer and electrically connected to said source electrode.

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30. (New) The liquid crystal display of claim 29, wherein said transparent pixel electrode overlaps said capacitor electrode.

31. (New) A method for manufacturing a liquid crystal device, comprising the steps of:

forming a gate electrode on a substrate;
forming a gate insulating film covering the gate electrode;
forming a source electrode and a drain electrode on the gate insulating layer;
forming a transmissive pixel electrode on the gate insulating layer;
forming a passivation layer to cover the source electrode, the drain electrode and the transmissive pixel electrode; and
patterning the passivation layer to form a window exposing the transmissive pixel electrode.

32. (New) The liquid crystal display of claim 31, further comprising the step of forming a reflective pixel electrode on the passivation layer,
wherein the step of patterning the passivation layer comprises the step of patterning the reflective pixel electrode.

33. (New) The method of claim 31, wherein the transmissive pixel electrode covers a portion of the source electrode.

34. (New) The method of claim 31, further comprising the step of forming a buffer layer on the transmissive pixel electrode.

35. (New) The method of claim 34, wherein the step of patterning the passivation layer comprises the step of patterning the buffer layer to expose the transmissive pixel electrode.

36. (New) The method of claim 35, wherein the buffer layer is metal.

37. (New) The method of claim 31, wherein the step of forming the transmissive pixel electrode comprises the steps of:

forming the transmissive pixel electrode on the gate insulating layer; and

forming a buffer layer on the transmissive pixel electrode.

38. (New) The method of claim 37, wherein the buffer layer is formed after forming the transmissive pixel electrode but before forming the passivation layer.

39. (New) The method of claim 37, wherein the buffer layer is silicon oxide or silicon nitride.

40. (New) A method for manufacturing a liquid crystal display, comprising the steps of:

forming a gate electrode on a substrate;
forming a gate insulating film covering the gate electrode;
forming a transmissive pixel electrode on the substrate;
forming a source electrode and a drain electrode over the gate insulating film;
forming a passivation layer covering the source electrode, the drain electrode and the transmissive pixel electrode; and
forming a reflective pixel electrode on the passivation layer.

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41. (New) The method of claim 40, further comprising the step of patterning the passivation layer to form a window exposing the transmissive pixel electrode.

42. (New) The method of claim 40, further comprising the step of forming a buffer layer on the transparent pixel electrode.

43. (New) A method for manufacturing a liquid crystal display, comprising the steps of:

forming a transistor on a substrate;
forming a passivation layer on the substrate and the transistor;
forming a reflective pixel electrode on the passivation layer; and
forming a transmissive pixel electrode on the reflective pixel electrode.

44. (New) The method of claim 43, further comprising the step of forming an opening in the reflective pixel electrode prior to forming the transmissive pixel electrode.

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45. (new) The method of claim 44, wherein the transmissive pixel electrode covers the opening.

46. (New) The method of claim 43, further comprising the step of patterning the passivation layer to form a contact hole exposing a source electrode of the transistor, wherein the reflective pixel electrode and the transmissive pixel electrode are electrically connected to the source electrode through the contact hole.

47. (New) The method of claim 43, wherein the transmissive pixel electrode is indium zinc oxide or indium tin oxide.

48. (New) A liquid crystal display, comprising:
a substrate;
a transistor formed on the substrate;
a passivation layer covering said substrate and said transistor;
a reflective pixel electrode formed on the passivation layer; and
a transmissive pixel electrode formed on the reflective pixel electrode.

49. (New) The liquid crystal display of claim 48, further comprising an opening formed in said reflective pixel electrode.

50. (New) The liquid crystal display of claim 49, wherein said transmissive pixel electrode covers the opening.

51. (New) The liquid crystal display of claim 48, further comprising a contact hole formed in the passivation layer to expose a source electrode of said transistor, wherein said reflective pixel electrode and said transmissive pixel electrode are electrically connected to the source electrode through the contact hole.

52. (New) The liquid crystal display of claim 48, wherein said transmissive pixel electrode is indium zinc oxide or indium tin oxide.